

-30V/-90A P-Channel MOSFET

Features

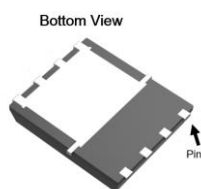
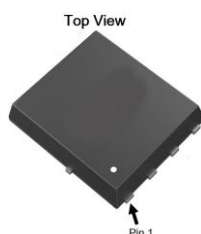
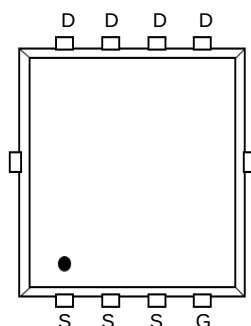
- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS

Product Summary

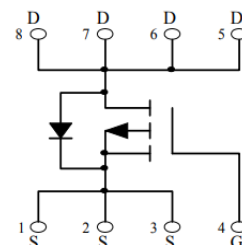
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-30V	6m Ω @-10V	-90A
	8m Ω @-4.5V	

Application

- Battery and loading switching
- Excellent package for good heat dissipation



PDFN5X6-8L



Schematic diagram



Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Rating	Unit
Common Ratings ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)			
V_{DS}	Drain-Source Breakdown Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 20	V
T_J, T_{STG}	Storage Temperature Range	-55 to 175	$^{\circ}\text{C}$
I_S	Diode Continuous Forward Current	$T_C=25^{\circ}\text{C}$ -90	A
Mounted on Large Heat Sink			
I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}\text{C}$ -360	A
I_D	Continuous Drain Current	$T_C=25^{\circ}\text{C}$ -90	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}\text{C}$ 100	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	62.5	$^{\circ}\text{C/W}$

Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V, V _{GS} =0V	--	--	-1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.5	-2.2	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-45A	--	4.5	6	mΩ
		V _{GS} =-4.5V, I _D =-45A	--	6.3	8	mΩ
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	4450	--	pF
C _{OSS}	Output Capacitance		--	800	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	520	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DD} =-15V, I _D =-15A, V _{GS} =-4.5V	--	38	--	nC
Q _{gs}	Gate Source Charge		--	23	--	nC
Q _{gd}	Gate Drain Charge		--	14	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =-15V, I _D =-15A, V _{GS} =-10V, R _G =3Ω	--	15	--	nS
t _r	Turn-on Rise Time		--	22	--	nS
t _{d(off)}	Turn-Off Delay Time		--	85	--	nS
t _f	Turn-Off Fall Time		--	45	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25℃, Is=-15A,	--	--	-1.2	V

Typical Operating Characteristics

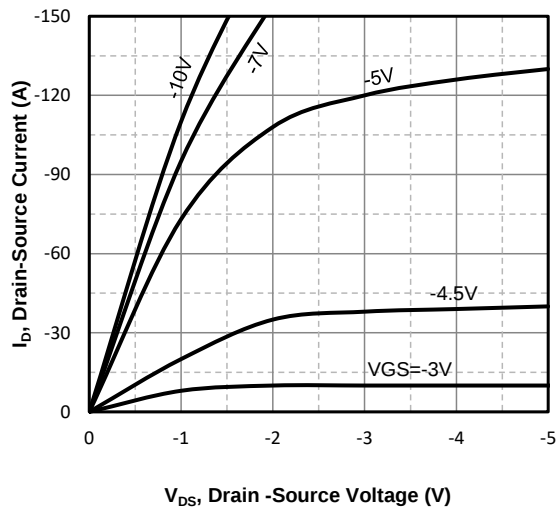


Fig1. Typical Output Characteristics

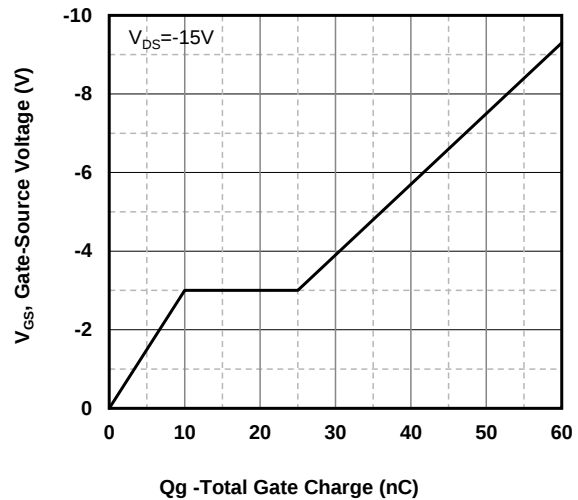


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

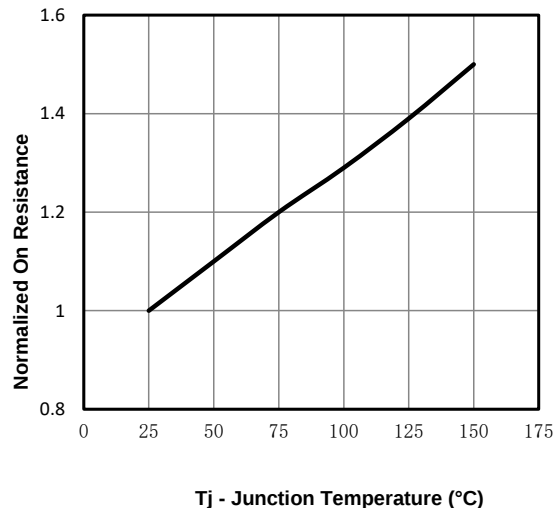


Fig3. Normalized On-Resistance Vs. Temperature

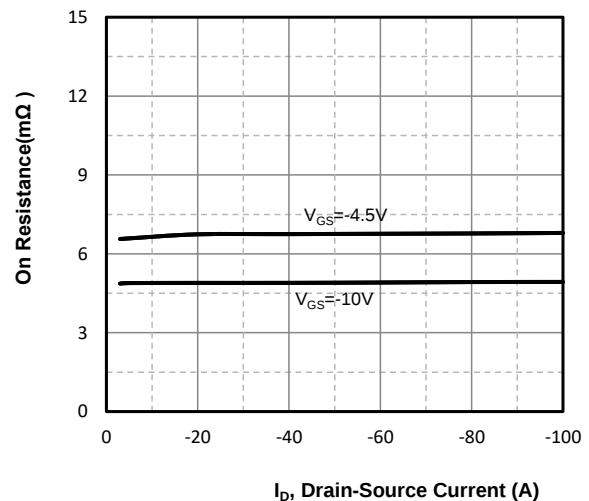


Fig4. On-Resistance Vs. Drain-Source Current

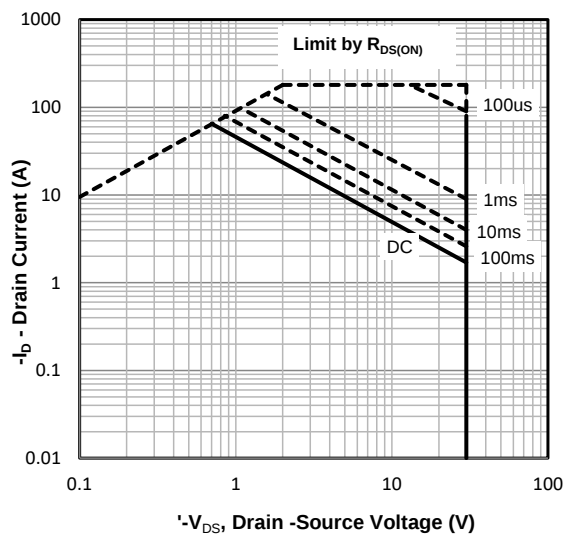


Fig5. Maximum Safe Operating Area

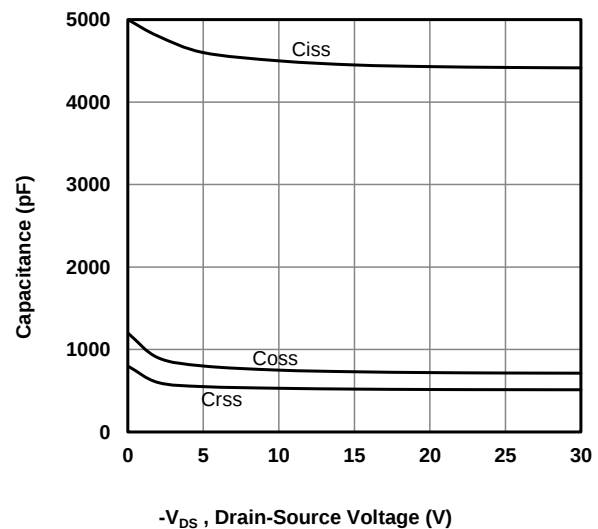


Fig6 Typical Capacitance Vs. Drain-Source Voltage

PDFN 5X6

